Lv18PicFLASH™

User manual

Flash program is used to transfer a .hex file from a PC to the microcontroller memory by means of the appropriate hardware. Every flash program includes numerous options used for setting the microcontroller's configuration bits.

Programmer

MikroElektronika
SOFTWARE AND HARDWARE SOLUTIONS FOR EMBEDDED WORLD ...making it simple

TO OUR VALUED CUSTOMERS

I want to express my thanks to you for being interested in our products and for having confidence in Mikroelektronika.
The primary aim of our company is to design and produce high quality electronic products and to constantly improve the performance thereof in order to better suit your needs.

Nebojsa Matic
General Manager

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1.0. Introduction to 18FJprog Programmer

The *18FJprog*™ programmer is a great tool used for programming PIC® microcontrollers from Microchip®. As a low-consumption device, it is ideal to be used with notebooks. It's unique design and simplicity make it a very popular tool among beginners and professional users alike. The *18FJprog* programmer communicates to the microcontroller through a USB cable which is also used for powering the programmer. In order to use this programmer, it is necessary to have the *Lv18PicFLASH* program and the appropriate driver, provided on the product CD, installed on your PC. After that, you can use the *18FJprog* programmer and a hex code generated in any PIC compiler to load the program into a PIC18FJ microcontroller.

The *18FJprog* programmer is built into all Mikroelektronika's LV-18f development systems. The same programmer is also available as a stand-alone device used for programming PIC18FJ microcontrollers built into (soldered on) the target device.

The *18FJprog* programmer is built into all Mikroelektronika's development systems designed for working with PIC18FJ microcontrollers.

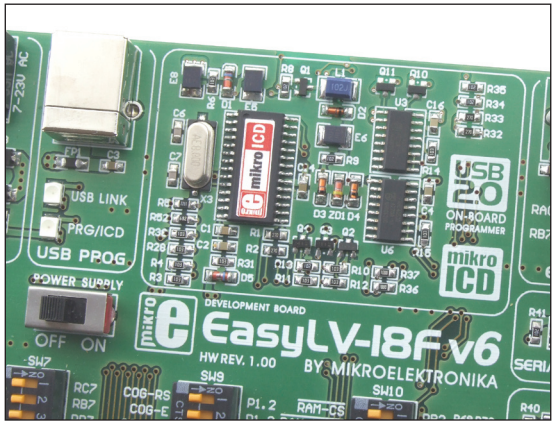
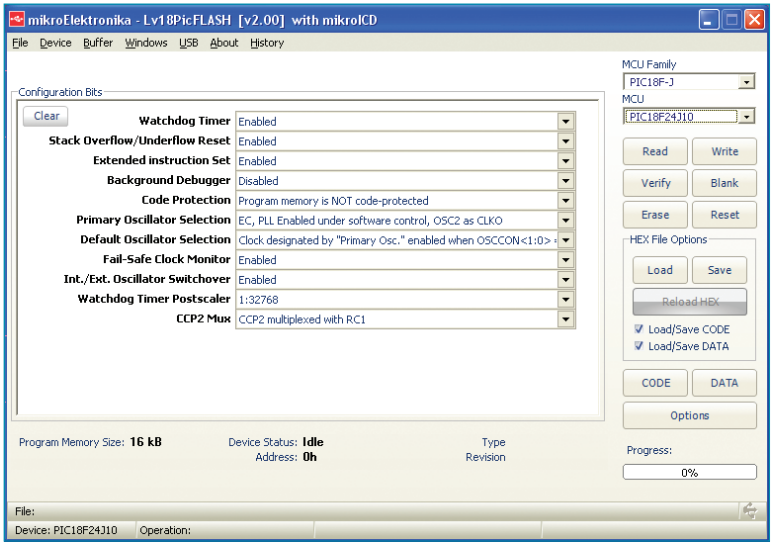


Figure 1-1: On-board *18FJprog* programmer

The *18FJprog* programmer is also available as a stand-alone device used for programming PIC18FJ microcontrollers built into (soldered on) the target device.

Figure 1-2: Stand-alone *18FJprog* pogrammer

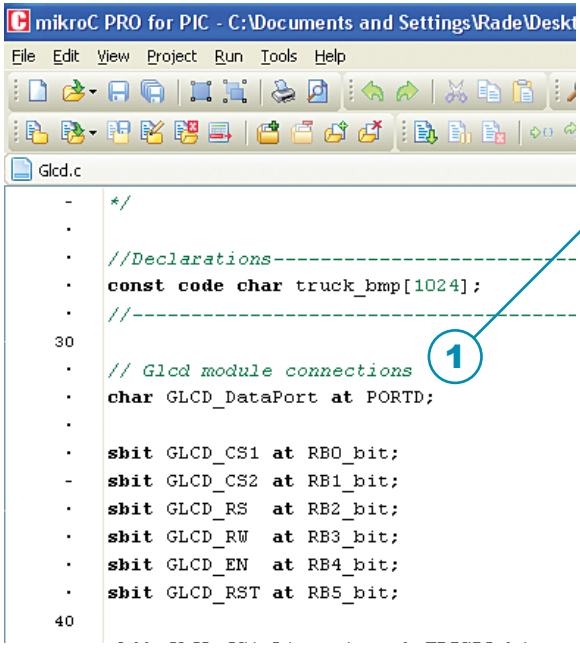


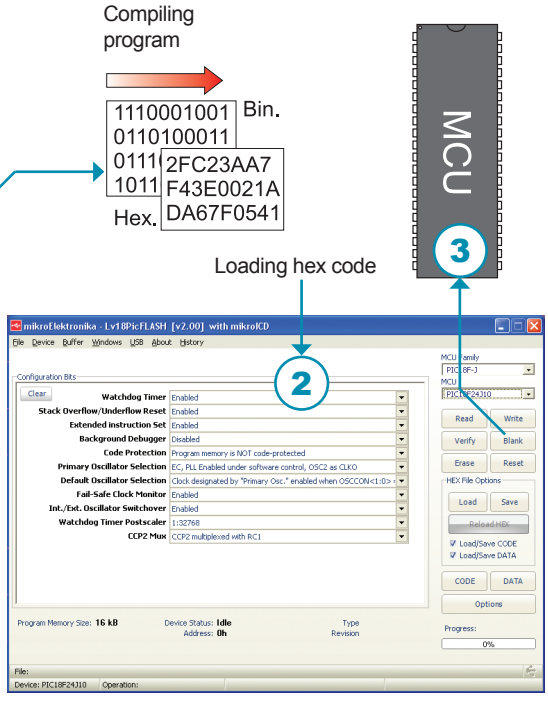
The *Lv18PicFLASH* program contains an option for selecting the microcontroller to be programmed. The latest version of this software with updated list of supported microcontrollers can be downloaded free of charge from our website at www.mikroe.com

Figure 1-3: *Lv18PicFLASH* program's window

2.0. Programming Microcontrollers

The process of programming microcontrollers starts by writing a program in one of PIC compilers (*mikroC PRO for PIC*, *mikroBASIC PRO for PIC, mikroPASCAL PRO for PIC* etc.). When the program is correctly written, it should be compiled into a format that can be loaded into the microcontroller. The program to be loaded into the microcontroller has the *.hex* extension. As soon as the .hex file is generated, the program can be loaded into the microcontroller.





(1) Write a code in one of PIC compilers and generate a .hex file;

(2) In the *Lv18PicFLASH* program's main window select the microcontroller and load the hex code into the programmer's buffer;

(3) Click the *Write* button to program the microcontroller.

On the right side of the *Lv18PicFLASH* program's window there are several options which make the programming process easier, whereas, on the left side of the window there are a number of options for microcontroller settings. Positioned in the bottom right corner of the window, the *Progress* bar enables you to monitor the programming process.

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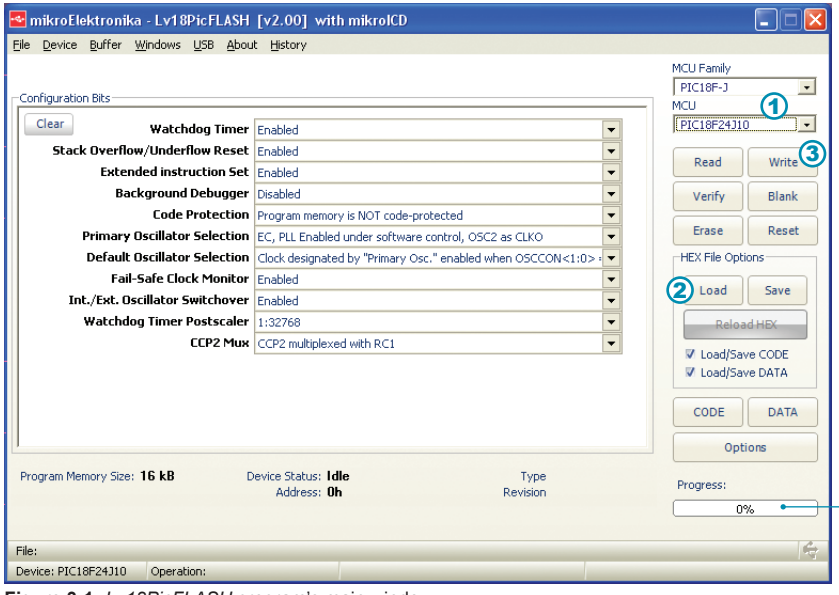
3.0. *Lv18PicFLASH* Program

The *Lv18PicFLASH* program is easy to use as all the options necessary for its operation are provided in a simple window which will appear either by clicking on the *Lv18PICFLASH* icon or automatically by starting the programming process (*Build And Program* option) in one of PIC compilers.
The options used for setting configuration bits are provided on the left side of the window, whereas the options for loading .hex file into the programmer and microcontroller are provided on the right side of the window.
The left side of the window can be different depending on the type of the microcontroller in use and its configuration bits.



To load the program into the microcontroller, do the following:

1. Select the microcontroller to be programmed and the *Lv18PicFLASH* will automatically set default parameters for working with the respective microcontroller
2. Click the *Load* option to open the window to select the hex code to be loaded into the microcontroller
3. Click the *Write* option to start programming the microcontroller

The *Progress* bar shows the programming progress expressed in a percentage

Figure 3-1: *Lv18PicFLASH* program's main window

The *Lv18PicFLASH* program enables a hex code, generated in one of PIC compilers, to be loaded into the microcontroller. The hex code should be loaded first into the programmer's buffer by clicking the *Load* option, then into the microcontroller by clicking the *Write* option within the programmer's main window. The programming progress will be shown in the *Progress* bar positioned in the bottom right corner of the same window.

4.0. Software Installation

Before you start up the *Lv18PicFLASH* program, it is necessary to install the appropriate driver. For more information refer to quick guide for installing USB drivers.

Step 1: Start installation

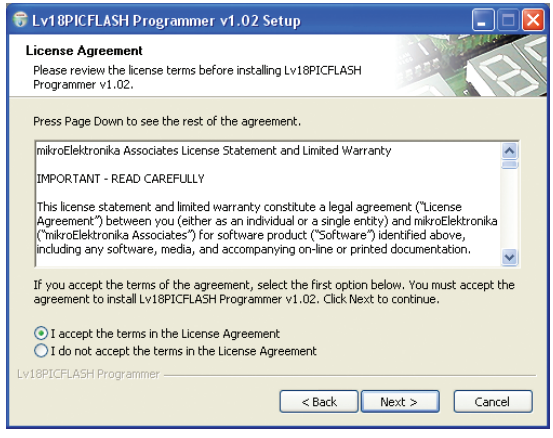
Insert the product CD into a CD drive. After a few seconds, a list with all Mikroelektronika's products will appear on the screen. To start the process of installing the *Lv18PicFLASH* software, click on the setup icon provided in the *18FJprog* section on the product CD:

CD Drive:/F:/zip/lv18picflash_programmer_v200.zip

You can also download the *Lv18PicFLASH* free of charge from our website. In this case the installation starts from your hard drive. A welcome window appears. Click *Next* to proceed.

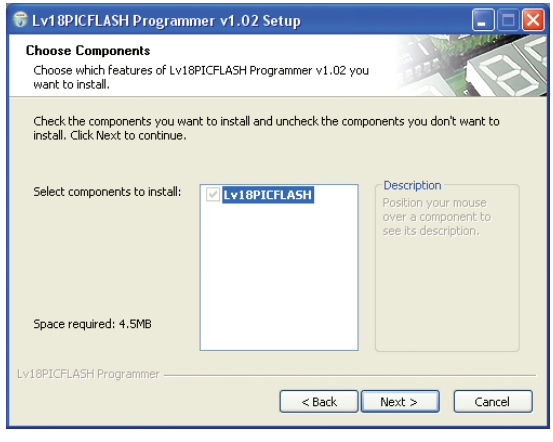
Step 2: License Agreement

Before you start the installation process, please review the license agreement terms. To accept them, select the option *I accept the terms in the License Agreement* and click *Next*.



Step 3: Choose Components

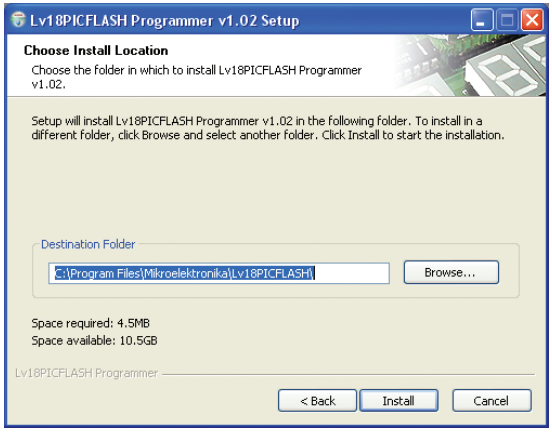
To make your choice simple, this installation step offers you only one component to choose. Click *Next*.



Step 4: Choose Installation Location

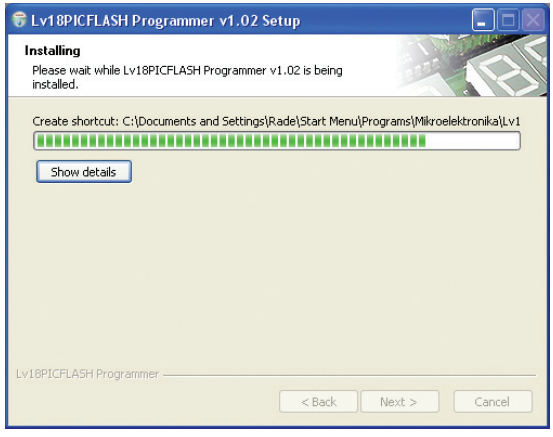
Now, you should specify the folder to install the *Lv18PicFLASH* program into. If you want to install it in a folder different from default, click *Browse* and select another folder on your hard disc. Then click *Next*. If you choose the default folder, the program will be installed on the following location:

C:\Program Files\Mikroelektronika\v18PICFLASH



Step 5: Installation Details

The installation of the *Lv18PicFLASH* program starts immediately. The installation progress will be shown on the screen. If you are interested in details about the installation, click the *Show details* button.



Step 6: Comlpeting Installation

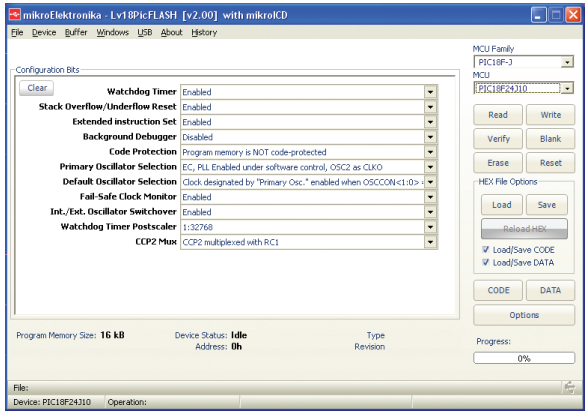
Windows will inform you in the window, as shown in figure on the right, that the *Lv18PicFLASH* program has been successfully installed. Click *Finish* to complete the installation.

5.0. Practical Example of Using *Lv18PicFLASH* Program

After the software installation is complete, connect the programmer to your development system using a USB cable. The USB connection will be automatically established, which is indicated by the *USB LINK LED's* illumination.

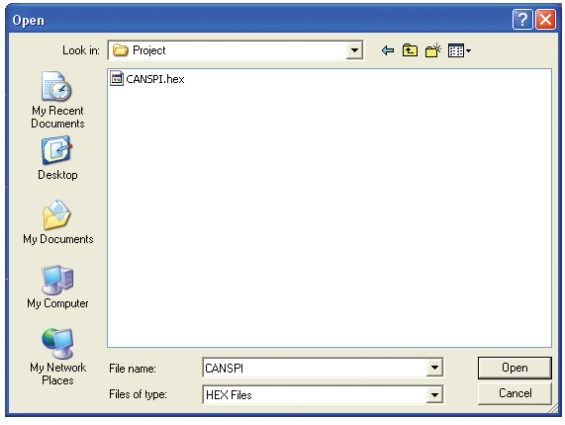
Step 1: Start up the *Lv18PicFLASH* program

Start up the *Lv18PicFLASH* program installed on your PC. Click the *Device* option in order to select the microcontroller to be programmed. The *Lv18PicFLASH* program will automatically set default parameters for working with the respective microcontroller.



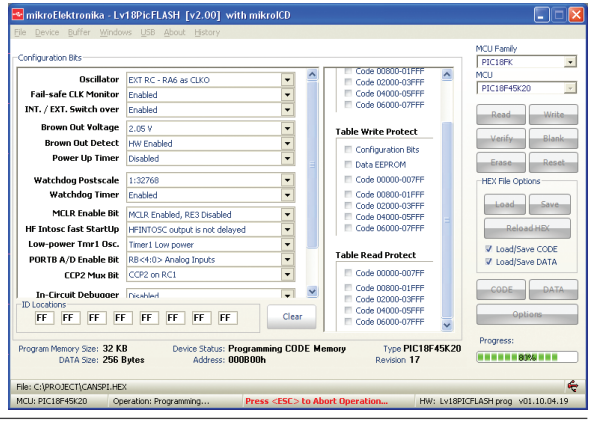
Step 2: Load a hex code into programmer's buffer

Click the *Load* option to open the *Open* window, as shown in figure on the right. Select the relevant file with the *.hex* extension and click the *Open* button. The file will be automatically loaded into the programmer's buffer.



Step 3: Write the hex code into the microcontroller

Click the *Write* option in the upper right corner of the main window to start programming the microcontroller. The programming progress will be shown in the bottom right corner of the same window.



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6.0. Keyboard Shortcuts and Command Line Parameters

Keyboard Shortcuts:

Alt-E	Erase the content of microcontroller's memory
Alt-B	Program memory blank check (whether it is empty)
Alt-W	Write a hex code into a PIC microcontroller
Alt-V	Verify the loaded hex code
Alt-R	Program memory reading
Alt-D	Change microcontroller type
Ctrl-S	Save hex code
Ctrl-O	Open (Load) file with hex code
Ctrl-R	Reload hex code

Command Line:

The *Lv18PicFLASH* program may also be activated from the command line, thus enabling you to use it from some other software, compiler etc. Here is a list of the command line parameters:

-w	Write to PIC18FxxJxx microcontroller
-v	Verify
-e	Erase program from PIC18FxxJxx microcontroller
-r	Read program from PIC18FxxJxx microcontroller
-p	Type of microcontroller (for example, PIC18F67J10, PIC18F97J60 etc.)
-f	.hex file name (FLASH) "[<name must be enclosed in quotation marks>]"
-b	Memory blank check (whether it is empty)
-q	Close the *Lv18PicFLASH* program after programming
-Uon	Code protection
-Uoff	Code is unprotected

Example 1:

***Lv18PicFLASH*.exe -w -pPIC18F67J10 -v -f"C:\somefile.hex"**

This command is used for loading *C:\somefile.hex* into the PIC18F67J10. microcontroller. This file will be verified immediately after being loaded into the microcontroller.

Example 2:

***Lv18PicFLASH*.exe -r -pPIC18F67J10**

This command is used for reading the content of the PIC18F67J10 microcontroller's program memory.

Example 3:

***Lv18PicFLASH*.exe -e -pPIC18F67J10**

This command is used to erase program from the PIC18F67J10 microcontroller.

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